Tuple

- Tuple is a data type used to store multiple item in a single variable.
- Ordered in nature.
- It allows duplicates values.
- Immutable(unchangeable)
- Represent with normal brackets. i.e.()
- It store multiple data types(string, num, Boolean, none)
  i.e. it is objective data type
- Constructor →tuple()
- Single element in tuple is treated as normal data type due to normal brackets.
  Eg. t1 = (10)
  t2 = ('hellow')
  here t1 treated int type and t2 treated as string type.so overcome that using single comma at the end .
  t1 = (10,) or t2 = ('hellow',) treated as tuple
- To find length of tuple len function used.
- Indexing is same as list
- We can not perform operations on tuple due to immutable in nature. So we convert into list in perform add, remove, update like operation on it.
- **<u>Packing and unpacking:</u>**
  - Packing: assign the value
    Fruits = ('apple', banana', 'cherry')

- Unpacking: extract the value
  fruits = (‘apple’, banana’, ’cherry’)
  (‘green’, ‘yellow’, ‘red’) = fruits
  So, apple = green
  banana = yellow
  cherry = red

- Asterisk(*):
  - L1 = (‘a’, ‘b’, ‘c’, ‘d’, ‘e’)
    (1,2,3,4*) = L1
    Here a=1,b=2,c=3,
    d=4 and e=4
  - (1,2*,3) = L1
    Here a=1,b=2,c=2,d=2,e=3

- Addition of two tuple:
  tuple1+tuple2
- Multiplication
  (‘a’, ‘b’, ‘c’, ‘d’)*2
  Output: (‘a’, ‘a’, ‘b’, ‘b’, ‘c’, ‘c’, ‘d’, ‘d’)

- Count:
  Method is used to count no of occurrence. When given value present in tuple its simple return count , and the value is absent it return the zero(0). Not give any error.

- Index:

  Method is used to find index of given value. When given value present in tuple its simple return index of that value, and the value is absent it give value error.

- Join:

  - For num

```
t1 = (1,2,5,6,2,4)
result =''.join(map(str,t1))
print(result)

output→125624
```

  - For string

```
t1 = ('a','b','c','d')
result =''.join(t1)
print(result)
```

- Zip:

  In normal addition:

```
num = [(1, 2, 3, 4),(3, 5, 2, 1),(2, 2, 3, 1)]
result = [sum(x) for x in num]
print(result)

output: [10, 11, 8]
```

  In first num of every tuple addition:

```
num = [(1, 2, 3, 4),(3, 5, 2, 1),(2, 2, 3, 1)]
result = [sum(x) for x in zip(*num)]
print(result)

output: [6, 9, 8, 6]
```